

AN
E S S A Y
ON THE
BITE OF A MAD DOG;

WITH OBSERVATIONS ON
JOHN HUNTER'S TREATMENT OF
THE CASE OF MASTER R—.

AND ALSO,
A RECITAL OF THE SUCCESSFUL TREATMENT
OF TWO CASES,

BY JESSÉ FOOT, SURGEON.

RIEN N'EST BEAU, QUE LE VRAI.—VOLTAIRE.

L O N D O N:

PRINTED FOR T. BECKET, IN PALL MALL, BOOKSELLER
TO THEIR ROYAL HIGHNESSES THE PRINCE OF
WALES, DUKE OF YORK, AND THE PRINCES.

MDCCLXXXVIII.

[PRICE TWO SHILLINGS.]



(11)

T O

PERCIVAL POTT, Esq. F. R. S.

&c. &c. &c.

SIR,

PERMIT me to solicit your sanction to the following Essay, and to return you my sincere thanks for the great advantages which I have derived from all your works in surgery. You have not only adorned that art by your publick Lectures, but advanced it to high perfection. Your writings and method of practice will be lasting, because they have their foundation in truth. Your cases will be ever true to nature, because they were given by a man of honour and discernment. To your active and comprehensive mind, to your long and extensive experience, to your nice respect for the useful observations of the ancients, to your dili-

diligence in selecting from them, whatever was valuable, surgeons in particular, and mankind in general, owe the greatest obligations. You scorned to be defective in candour, when you aimed to be perfect in knowledge. May you long enjoy your natural vigour of mind, and feel a calm repose under the benign shade of laurels that surround you; and may your future days be as exquisitely happy, as your past have been eminently useful.

I am, Sir,

Your sincere friend,

And obliged humble servant,

JESSÉ FOOT.

Dean-street,

May 20, 1788.

A N E S S A Y

ON THE

BITE OF A MAD DOG, &c.

IN compliance to custom, I shall continue to call the disease brought on the human subject from the bite of a mad animal, Hydrophobia; notwithstanding Doctor Mead hath remarked, and with strict propriety in my opinion, that the word does not convey the true meaning of the effect of water upon the patient, when this frightful symptom is upon him, which is not a dread of water, but despair of gratifying thirst, through the impossibility of swallowing it.

It has been also remarked by the same author, that there are other diseases, although in a more partial degree, in which this same difficulty in swallowing is observed.

I believe that there are very few men who have thought on this subject, either with a view to medical utility, or from a recent instance of some melancholy case having come before them, but what must be impressed with such feelings upon the occasion, as are dreadful to conceive, and painful to express.

And although it might happen, that from the covering which is worn, and some accidental causes, not more than one in ten of those bitten by a mad dog receive the infection ; yet the hazardous condition that all continue in from the moment of the wound being inflicted, to the utmost limitation that even fabulists report of the dormant state of the venom, must be an interval of horror not to be envied by such as are devoted to
decimation,

decimation, or by a wretch in a dungeon sentenced for execution. Yet this interval of fatal apprehension hath been filled up by a hope that, however false, hath smothered despair, and lulled the senses into a fallacious security.

This will enable me to explain to my readers what would otherwise appear an inexplicable phenomenon. It will also afford me the pleasing gratification of taking off a stigma, which would otherwise stain the fair fame of the first medical characters, from the earliest ages down to the present times, who have with uncommon zeal published their opinions upon this disease, and who have each given into some favorite medicine for the prevention of it. One medicine hath been ushered into reputation with flattering applause, and hath continued its influence, until by the failure of it, it was abandoned by credulity, and turned out of practice to make room for the succession of another and another.

How is it to be explained that such a character as Mead, for instance, and some before his time, men famed for professional skill and honour, beyond all power of suspicion, should have been so far deceived, as to deceive others, in giving to the publick a prophylactick medicine to infallibly prevent the effects of a bite from a mad dog, which in the event hath proved inadequate to that end, and is not to be trusted?

Most of these eminent men who have written upon this subject were actuated from the spur of the occasion; they had been called to a few cases where the symptoms of hydrophobia were actually upon the patient; they had convinced their understandings of the inevitable fate that uniformly awaited such as were arrived at this dreadful stage; and not being able to afford the least relief, they aimed to make a stand against the disease on its first approach, judging that they could destroy that in embryo which was acknowledged by all to be out of their power, when once the evil was ripened

ripened to maturity. They were not also then aware, as we now are, that so few received the infection in proportion to the many that were bitten by dogs really mad, not to mention some that were also bitten by dogs only supposed to have been so. Being themselves at a loss for a remedy, they either adopted that which came the strongest recommended to them, as Mead did the powder of Dampier, or, upon bare probability alone, offered something of their own. Grown confident from the success of so many escaping the fatal effects, they attributed that virtue to the medicine which it had not, and were induced to give their sanction to that which they deemed infallible, upon the purest motives. Nor had they an opportunity perhaps, who were so generously disposed, in the course of their life time to be convinced of their error and to retract the practice of it. For it is a fact, not unpleasing to be told, that the instances of those really infected, all of whom infallibly die, are in comparison to the numbers bitten few and scattered ; and many a medical
man

man of extensive practice passes through life with having been an eye-witness to no more than one, or perhaps to not a single case.

Such hath been the cause, why the hope from various medicines, which flattered in prospect, disappointed in the end. Such hath been the ill success of the great characters which I allude to, that they only kept their reputation, because they honestly attempted to increase it. And such is our ignorance of the nature of this disease at present, that, with very insignificant exceptions, we have not gained a point of our ancestors two thousand years ago. We remain in utter darkness, and if there be any thing in future to be hoped for, it must be obtained by beginning de novo, by adopting a new system, by substituting analogy for blind theory, and by making our advances upon the more solid grounds of comparative experiments. By these exertions we may aspire to essential truths, and acquire that substantial information which
will

will stand the test of reason, and which will be received only as a positive good, by its positive success.

It might be a gratification expected from me, conformable to the general practice of other writers on this subject, to explain to my readers the voluminous essays of those who have gone before me, for the information of some, and for the curiosity of others. Although I do not mean to be either minute or digressive, I shall not wholly spare myself that labour, because I deem such enquiry in some measure conformable to the intention that induced me to write. For if it be necessary to urge mankind to set aside what has been already attempted and failed of its purpose, it is a justice due to the understanding, that what has been done, should be known ; for this is a subject, upon which the private interest of an individual cannot have another design independent of that which is annexed to the more general cause of benevolence. The object is so important, as to justify me in
presuming

presuming, that the more that start fairly in this race of humanity, the more truth might be hoped for and expected, and that the prize of reputation will be given to the merit only that truly exacts it.

Another motive that induces me to give a short historical sketch of this disease is, that the publick may be acquainted with the catalogue of prophylacticks that have promised so much and that have fallen so short in their performances; for so prevalent is prejudice, and so natural is the propensity of man to adhere to opinions once rooted in his mind, that whenever an instance occurs of a person being bitten by a mad dog, the confidential receipt-book of the good Lady Bountiful is immediately unfolded, the charm or incantation is wound up, the hotch-potch of herbs are prepared, the dog is sacrificed, and his liver is chopped, and offered up at the altar of superstition. The poor bitten subject is harraffed by the several candidates who throw in their separate claims for infallibility; he is sent to the sea, he undergoes a ducking

ducking, he is brought back and sent again. In short, if absorption of the venom hath taken place, and he really becomes disabled, he is often deserted through fear by his nearest relatives, or which has been done, a period is put to his existence by suffocation. I shrewdly suspect that if the secret ingredients of the compounds be disclosed, which are boasted of in families, they will bear evident marks of legitimacy to one or other of these presumed remedies, which I am about to expose for that very reason.

The history of the hydrophobia affords a great scope for speculative contemplation ; and he that hath enquired into it with the most correct attention, will scarcely be able to draw from it any thing better than an imperfect conclusion.

It should seem as if instances were formerly rare of this disease before the time of Cælius Aurelianus, who flourished in the reigns of Trajan and Hadrian. He was born in a city of some importance, called

C

Sicca

Sicca Venerea, in Africa. Cælius Aurelianus has given us a compleat history of the hydrophobia, and has painted the symptoms of it in such true colours, that he has always been looked up to as the original author that has treated on the subject. It appears from him, that if the disease had been before much known, it had not been attended to by medical writers, as he has appropriated a whole chapter to the discussion of "Whether the hydrophobia was a new Disease or not." And here I cannot refrain from expressing my admiration of the wonderful penetration of this valuable ancient; that he should have burst forth at once with so complete and faithful an account of a disease, that even now is only confirmed to be what he said it was, and without the smallest correction whatever, and that these truths should have come forth from him at a time when historick doubts were started by others, "Whether the disease had any existence in reality or not." *

* Vide Cælii Aureliani. 226. Ed. Amstelædam. 1622.

Of the places where the hydrophobia had raged, Cælius Aurelianus tells us, that at Caria and Crete it had very much prevailed. The island of Crete, he says was particularly free from poisonous animals, but that the canine disease had prevailed there very common. He also tells us, that none of the ancients had given a cure for this passion, but he has given a faithful account of what was attempted by them. Artorius advised his patient to be plunged into cold water. Niger and Eudemius bled their patients and gave hellebore. Some gave castor, some oil of roses, some scammony, some gave snow instead of water, judging that the patient may gratify his thirst in that form, when he could not with water ; some made use of stratagems to induce the patient to drink, which would make the most serious smile ; but Cælius Aurelianus says, that the strictures produce such insurmountable obstacles, that it is beyond a doubt the hydrophobick passion must prove mortal.

Celsus * recommends the plunging the patient into cold water. Hieronymus Mercurialis says, that he was the first of all who wrote on the cure of this passion †.

Galen says that many remedies were referred to, such as the liver of the mad animal boiled, the Coagulum Catuli Lactantis ; but he asserts at the same time, that these remedies, that we may not be deceived, did not effect a cure of that passion, but rather tended to preserve the bitten from extreme fatal consequences ; and with this view, he says, that no one, who took the powder of burnt crabs before the symptoms came on, died of that passion.

Ætius recommends, theriaca, powder of burnt crabs, and lignum vitæ. ‡

* Celsus, lib. 5, cap. 27.

† Celsus flourished Anno Christi. 15.

‡ Ætius Edit. Franfort. Anno 1541. Sermon. 2nd.

Hieronymus

Hieronimus Mercurialis tells us, that Oribesius directs a method of ascertaining, whether a suspected dog be mad or not, by pounding of wallnuts, and applying them to the wound inflicted by a dog, and then throwing them for food to cocks and hens; if they eat them, and the dog be mad, they will die instantly*.

We also learn from the same author, an experiment that hath since been confirmed by modern authors, although not told in that candid manner that it ought to have been. It was, that some caused pieces of bread to be rubbed on a suspected wound, and offered them to dogs in common; if the dogs eat the bread, the bite was not poisonous, but if the dogs would not eat the bread, it was a sign that the bite was poisonous. Some extracted blood from the wound, and made such an experiment by mixing it with bran.

* Hieronym. Mercur. Cap. xv. de Rabie.
Oribesius, apud Paulum, lib. 5, cap. 3.

Apuleius recommends the same experiment, substituting barley-meal instead of bran or bread *.

Lommius relates that dogs are terrified at the sight of dogs that are mad, or at hearing them bark.

Dehaute, a French author that made some noise on this subject fifty years ago, relates the same circumstances, but without giving the least credit to the ancient author above recited. The idea was supposed to have been new, and the discovery was supposed to have originated from reports in the history of the Royal Academy of Sciences.

Dr. James's case of Field † would be very strong in point, for by him it appears, that dogs not only shun dogs, but men under the influence of the hydrophobia. But unfortunately (for I think myself unfortunate

* James on the hydrophobia, page 33-34.

† Vide James on the hydrophobia.

when

when I cannot fall into the opinion of Dr. James in this last instance, who was a man whose medical character I almost adore) I suspect that Field never was truly possessed of the canine disease. The circumstance of Field's neighbour's dog, which was bit by his own dog, being hanged at Charing-cross before his own door, was too terrible not to excite fear, and too alarming not to fill the mind with imaginary horror; I am persuaded that this was the extent of the injury sustained by Field. That dogs shun dogs that have actually the disease upon them and at its greatest height, may be true. I have thus far digressed in order to give credit where it was due to these ancient authors, whose observations have been copied, but not acknowledged.

There are many old authors recorded by Portal, and extracted by him from Draudius's *Biblia Classica* * which I have not been able to procure a sight of, most of them

* See the last page.

written in the sixteenth or seventeenth century on this subject; not that I lament much my want of these resources, for wading through these volumes would be attended I fear with unprofitable difficulties, such as searching for a road in trackless sands through a forest of firs. A cure is the object, but where among them is it to be found!

Pliny and Ætius both recommend wall-nuts internally *.

Baccus recommends Cantharides.

Van Helmont says that plunging the patient into water is the unicum remedium †.

But the Cineres Cancris ustis were the ormskirk of that day, each bearing equal proportion in intrinsic value, and popular credulity!

* Hippocampus Marinus—Silvestris Rosæ Tuberculum.

† Vide Mead on Poisons,

Dr.

Dr. Martin Lister, in the year 1694, published an Essay on this disease, founded on the authorities of ancient practitioners, being a physician of great erudition, and perfectly classical, the College of Physicians sanctioned his publication, and it certainly contains the perfection of medical information on canine madness, and the mode of treating it up to his time*.

Dr. Lister was a complete master of the medical lore, from whence he drew his resources, and, like many others, regarded so highly the observations of his predecessors, as to be more implicit in his confidence on them, than in making out any new method of his own. The only novelty to be found in this essay is his cases. That of James Cotton, as far as I know, is the first complete history of an hydrophobic patient upon record. In point of facts, it is described with much minuteness, but interspersed with the superstitions of anti-

* Vide Martini Lister sex Exercitationes.

quity, such as the barking of the patient, his lying in bed in the posture of a dog, &c. There is no novelty in his method of treatment, a copy of a copy, the old ground of Hellebore over again, and the death of the patient concludes the case. He has added seven more cases, but the first and the seventh appear to be the two only true hydrophobick cases. The rest are imperfect conceptions formed out of the warmth of a prejudiced imagination. But when I say, that there is not much to praise in Lister, I ought to say, that there is not much to blame, he has charmed them into no false persuasion of a Prophylactick, he has not deluded his cotemporaries, he has rather handed over to them the ignorance of his predecessors, and subscribed his own name under their authority. He has passively submitted to the trammels of their theory, without being energetick in the least active experiment of his own.

Dr. Mead, well known to the medical world, has written an Essay on the Bite of
a mad

a mad dog. He has introduced it in his usual manner, with great display of reading, and hypothetical conjecture. This, like a great many more of Dr. Mead's Effays, is of no other value, than to shew how well he was acquainted with the writings of the ancients. I hope it will not be deemed ungenerous in me to affirm, that, if the instructions of Dr. Mead, for the treatment of this disease, were from the time of the bite strictly followed, not one individual, when thus bitten, would ever recover, provided the infection did take place. The most essential object, that of destroying the power of the action of the virus, by encouraging topical applications for that purpose, as universally advised from the days of Cælius Aurelianus, by cupping, scarification, and many other modes, although not entirely perfect, yet all tending to use, Dr. Mead has taken upon himself to scout. He has added one more imaginary Prophylactick to the former stock. This he got from a gentleman of the name of Dampier, in whose family it

had been kept a secret for many years. It would have been well, if it had remained there. It was first published in the Philosophical Transactions, in the year 1670, and consists of the lichen cinerius terrestris, in English, the ash coloured ground liverwort, and black pepper.

This fallible remedy kept its ground for some time, I believe during the life-time of Mead, and no wonder, as the sanction of his authority would have made it profane to have doubted the efficacy of it. But I should have suffered this specifick to remain undisturbed, was it not necessary for me to demonstrate to the publick, that where blind conjecture is the only foundation for positive assertion, mankind in general, without any respect to persons, are so much upon a level, that the great name is as little to be credited as the most obscure one. Mead has done much more harm than a man of less reputation could have done, for the credit of this silly secret was raised, in proportion to that of his eminent character;

ter, as the object that is placed in the highest point of elevation, is seen at the greatest distance. But Mead was a man of learning and of credulity. The power of this medicine is not only shaken, but now destroyed, and lies entombed in the old London Dispensary.

Boerhaave confesses, that “ the cure of
 “ this Disease, if we except a few instances,
 “ has been hitherto very doubtful and un-
 “ certain, both in the Prophylactick and
 “ and Therapeutick part ; the principal cause
 “ of which is a vain boasting of many spe-
 “ cificks, and a neglect of that method of
 “ cure, drawn from the History of the
 “ Disease itself.” *. He advises, first, the
 application of large cupping glasses to the
 part, or the actual cautery. Second, that
 clothes touched with the poison be avoided.
 Third, that the patient is to be plunged in
 a terrifying manner into the sea. Fourth,
 to be sweated. Fifth, to foment his feet

* Aph. 1141.

and

and hands in warm water. Sixth, to drink cold water, and attend to his general constitution. This is the summary of Boerhaave's prescriptions.

Boerhaave also tells us, that the Prognosis is drawn from the fatal events that have universally followed the bite of a mad dog; since the most eminent Physicians, in all ages, have lamented that there has been found no certain preservation against the canine poison, nor one single instance, sufficiently attested, of the cure of an hydrophobia.

In the year 1735, Dr. James laid before the Royal Society his new method of curing canine madness, recommending, in the strongest terms, the use of turpeth mineral, and published a pamphlet, on the same subject, in the year 1741.

In the year 1756, Claude de Choisel, a Jesuit, and Apothecary to the mission of Pondicherry, sent some papers to France,
re-

relating to certain experiments he had made with mercury in the canine madness. These were published at Paris, and translated the same year into English. It is evident, that Choisel might, if he did not, have borrowed this practice from Dr. James; for it is no uncommon means, however illiberal, amongst medical writers in both countries, to be studious in concealing how much they are indebted for information to others, and to be avaricious in retaining that literary property they falsely possessed. Monsieur Default, Fellow of the College of Physicians at Bourdeaux, recommended mercury for curing the bite of a mad dog; Default declares, that he did not receive the least hint from any author, but that he was led to think, however ridiculous the thought, that worms were the cause, and seeing that the famous powder of Palmarius was composed of vermifuges only *, he determined to introduce mercury into the blood, as the fittest medicine to destroy worms, which, he supposed, were dispersed through all the

* See the last Pages.

fluids. This hypothesis, such as it is, De-fault assures us, led him first to the discovery of mercury.

I must here remark to the reader, that Monsieur Sauvry related, in the history of the Royal Academy of Sciences, for the year 1699, “ that mercury, perhaps, given “ in large quantities, may force open ob- “ structions in the circulation, which are oc- “ casioned by the contractions of veins.” This observation of M. Sauvry was known to Dr. Mead and Dr. Boerhaave. They have both remarked that state in which blood vessels are found in the bodies of those who died of this madness. But neither of them has taken the least notice of mercury, with which M. Sauvry proposes to remove the obstructions.

Cheyne recommended mercury.

Sauvage published an Essay on Canine Madness, and recommended mercury.

Cullen

Cullen recommended mercury also.

Many years ago, a medicine composed of pewter filings*, was printed in the Philosophical Transactions, as given by Sir Theodore Mayerne. This was said to be by him a specifick against canine madness. To this succeeded another medicine, commonly known by the name of the Tonquin Medicine, composed of cinnabar, musk, &c. † and first circulated in this country by Sir George Cobb.

But mercury all the world over, and an English medicine amongst Englishmen, known by the name of the Ormskirk Medicine, sold by Mr. Hill ‡, appear to be, in the opinion of some, the confident Prophylacticks of the present day. Thus have our expectations been raised by successions of remedies, and our hopes deluded from time immemorial to this hour, from the

* See the last Pages.

† See the last Pages.

‡ See the last Pages.

ashes of the craw fish of Galen, the woman's dream of dog rose, as mentioned by Pliny, the hellebore, the chopped liver, the mithridate, the sea bathing, the powder of Dampier, the pewter medicine, the powder of Palmarius, the Tonquin medicine, turpith mineral, and various other preparations of mercury, down to the vapid powder from Lincolnshire, which is, in effect, equal to as much chopped hay, or bread pills.

Opium hath had a liberal trial, but only whilst the patient laboured under the influence of the disease, but to as little effect as all the other remedies, which were exhibited in that stage of it: and notwithstanding what we are told by Lister, Nugent of Bath, Hillary of Barbadoes, and a few more, who proclaim, that cases have recovered, after the symptoms of hydrophobia were actually on the patient, yet it does not appear evident to my understanding, that any one patient ever recovered from that melancholy condition. These authors did not
mean

mean to mislead us ; it does not appear but that they implicitly believed what they have related to us ; and it is from their ingenuous and innocent confessions that I draw my conclusions. The mind of a person, who has been bitten by a dog, supposed to be mad, being constantly under the impression of so dreadful an attack, is open, and for a long time liable to the tyranny and sport of imaginary assaults. This is not only the case in this particular disease, but in many others, where the dread of them hath operated with all its influence.

Although the reputation of mercury, as a prophylactick, hath been spread over the four quarters of the globe, yet unfortunately for its advocates, and more so for the sufferers daily experience in varieties of cases, contradict the affirmation. I shall not enlarge further upon this point, because I consider such an enquiry as mere waste of time, because I am firmly persuaded, that there is not a medicinal power yet known, that will actually, or ever did prevent the fatal progress of the disease, when once the virus is

gone into the habit ; and the most recent cases of Dr. Dickson, Dr. Vaughan, Dr. Fothergill, and in particular that late one, where Dr. Turton, Mr. John Hunter, and Mr. Tufon attended, confirm my opinion upon this question. These facts attested at home, by men of eminence, within the scope of our own knowledge, must destroy all declarations to the contrary.

But singular as it may appear, yet it is a truth that ought not to be omitted, that the prejudice in favour of mercury prevails, in spite of its failure of success.

Monfieur Laffone, first physician to the King of France, tells us, that fifteen persons were bitten by a mad wolf ; that three of them, who trusted to oyster shell powders, and other remedies, of no use, died in a few days raving mad ; as also did another, who did not apply for relief, until two days before she died. But that the remaining eleven were, by the States of Macon, near which place the accident happened, put
under

under the care of a physician of Cluny, Monsieur Blaise, who treated these eleven with mercurial inunction, and that out of these eleven, thus treated, three died.

This we are told in commendation of the mercurial system of treatment. Both Messrs. Laffone and Blaise have my most cordial thanks for their candid manner of relating these truths; but the conclusions to be drawn from them, argue, in my opinion, strongly against, instead of for, the salutary effects of mercury. Both Dr. James and Dr. Vaughan agree, that nineteen out of twenty may be bitten, without being infected; then, peradventure, where is the impossibility that the remaining eight, out of fifteen that were bitten, might not be infected at all? A very strong mode of reasoning indeed, and such a one as certainly will be followed from the force of the example and instructions of Messrs. Laffone and Blaise; that as three out of eleven, who were bitten by the same mad animal, died, and who at the same time used mercury, so, there-

therefore, mercury is a specifick in this disease, and should be depended upon! This is making a blaze in favour of mercury with a vengeance!

The topical applications to the wounds inflicted by a mad dog, have been neglected to a fault, since the doctrine of the absorbents has been so universally known, since the works of Haller taught us to reason upon that system, and since the action of poisons, illustrated by Redi, but more especially by that modern and most ingenious and laborious philosopher, the Abbé Fontana, have now engaged the attention of all those who delight in such philanthropick questions of philosophy.

Although Fontana hath not made any of his experiments on the nature and action of this poison in particular, yet he hath instructed us by analogy to reason better, in general, upon this subject, as he hath ascertained the true laws of the action of other poisons, and of that of the viper in
par-

particular. Fontana hath silenced those superstitious writers, whose remedies he hath brought to the test, and scrutinized by the rigid touchstone of unerring experiment. Fontana, as it appears, made six thousand experiments on the effect of the bites of vipers. All these experiments tend to prove, that out of the various powers that have been boasted as antidotes to the poison of a viper, not one of them has the least property in reality to effect it.

The volatile alkali, boasted by Jussieu, is demonstrated to be absolutely useless; for it is clearly seen, that when the venom of the viper is effectually applied, the volatile alkali does not diminish its activity. Fontana united a great variety of substances with this poison, but did not observe, that after all, it lost its active quality. He mixed alkalies, neutral salts, oils of vitriol, the nitrous acid, phosphorick acid, and mineral acids.

The

The result of these experiments teach us not to lose our labour in search of an antidote to the bite of a mad dog; for if, after making six thousand experiments, Fontana is as far off as ever in discovering a specific for the bite of a viper, how improbable is it, that success should attend such an hopeless pursuit for the bite of a mad dog?

But I can put this question much more home to common understanding. Scarcely an individual passes through life, without having had the small pox. That disease cannot be prevented from taking effect, if the subject puts himself in the way of catching the infection. The whole of the variolous process must be gone through, in one degree or another; for although we find it practicable to correct the dangerous effects of it, yet we know of no power in medicine that will, after the infecting principle be once gone into the habit, infallibly prevent the eruptive fever and the eruptions in course. Then, if where we have the opportunity,
and

and in a milder difeafe, of trying ten thou-
 fand experiments in the fmall pox, to one
 in the hydrophobia, and are yet at a lofs
 for a prophylactick in the former, how def-
 perate muft be that idea, which may prompt
 a man on to expect fuccefs in the latter !

It is furely then high time that we fhould
 change our fyftem, it is high time that we
 fhould draw the line betwixt an abfurdity
 and a poffibility ; for fince we find, from a
 fucceffion of remedies, and all ftrongly af-
 ferted to be infallible by the moft learned
 of every age, for at leaft two thoufand
 years, that, in the event, thefe remedies have
 proved to be empty pretentions, and delu-
 five in their effect, it would be weaknefs in
 the extreme to be lulled by fuch expecta-
 tions any longer. I do, for thefe reafons,
 not hesitate to declare, that there is no
 other rational method for the prevention of
 the dreadful confequences of the bite of a
 mad dog, but by the cutting out of the part
 that is bitten ; and I promife myfelf an ef-
 fectual fecurity from future danger, by fuch

F

cut-

cutting out of the part, provided that the operation be performed within a feasonable time.

Topical applications to the parts bitten, have been recommended by almost all the great authors who have written upon this subject ; but these have only been considered by them as parts of a general method of treatment. These were not so applied as if they were in earnest, as if any dependance were placed in the general good that could be performed by them ; these were in the various shapes, in which they were applied, prescribed as a secondary measure ; as something done, without a thorough confidence in it, and which, considered abstractedly from other means, was fraught with no high expectations whatever. As they did not depend solely upon this method, as they always had in their view some medicinal prophylactick, as they always joined to it some prophylactick, so have they never followed up this practice to that extent which I exact, and so have they failed of success.

The

The enlargement of the bitten part, the scarification of the part, the application of cupping glasses to the part, the sucking of the wound, the bleeding it by leeches, the actual cautery, the turning the wound into an issue, the filling it up with gunpowder and setting it on fire, and the application of various causticks, are all fallible. These may succeed, but they are not secure. These have been put in practice, when notwithstanding the disease hath come on. I shall proceed to point out a recent instance of the application of caustick, which failed of the intention ; and my reason for introducing this case here, is obvious upon two grounds. The first is to shew, that nothing less than a complete removal of the bitten part from the living subject, will answer the purpose intended thereby. And the second is to shew, that whatever be done short of that complete removal, ought to be considered as a criminal imperfection.

If a case under the immediate care of a man of such reputed eminence, as Mr. John

Hunter, if a case, where the earliest advantage was taken of the injury inflicted, if a case, supposed to be treated agreeable to the most exalted skill of modern practice, if such a case failed, which it most assuredly did, it must have been owing to the inadequacy of the means to the end. And the failure of such a case, under such a combination of happy circumstances of great skill and immediate resource to it, proves a strong necessity of the positive adoption of a method, yet more certain, and not less practicable.

Considering the terms upon which Mr. John Hunter and I stand, it behoves me to be more fully explicit, that he, as well I, should not be misunderstood; and that the arguments, which I have yet to produce upon this very fatal case, should not be subjected to any misconstruction. I shall therefore proceed to give my readers the necessary part of the case, and the letter which Mr. John Hunter wrote to Dr. Hamilton, a physician in Suffolk, after the
death

death of the patient, and that letter will amply serve to explain all that I want to have explained.

On December the 6th, 1784, Master R. was on a visit in Jermyn-street, where a stray dog came into the room. A plate of meat was ordered for the dog, which he eat. The young gentleman took notice of the dog, and stooping down to examine it, the animal turned from his meat, and bit him on the right side of the under lip. He was immediately sent in a coach, which was then ready at the door, to Mr. John Hunter, in Leicester-fields, being at the distance of about a quarter of a mile *. The consequence of this bite was, that he died the 13th of Jannary, 1785, at his father's seat, in Suffolk. The following letter was sent to Dr. Hamilton, after the death of Master R. by Mr. John Hunter. Dr. Hamilton did not attend Master R. after his removal into the country, but as a motive for this corres-

* Vide Mr. Tufon's account in Hamilton on the hydrophobia.

pondence,

pondence, he was then collecting information upon this subject, for publication.

“ SIR,

“ I received the favour of yours. I am
 “ always extremely happy when I can give
 “ any useful information ; but all the infor-
 “ mation I can give you relative to the Hy-
 “ drophobia, is rather negative good, than
 “ positive. All the means recommended
 “ were used in Master R.’s case. I saw him
 “ only a few hours after the bite. The lip
 “ was torn a good deal. The teeth had
 “ gone through and through, and had torn
 “ out a piece. I immediately applied the
 “ caustic to every surface that I conceived
 “ had been made by the dog’s teeth ; and
 “ when those floughs came away, I went
 “ over the same field a second time ; but,
 “ from the termination of the whole, I am
 “ inclinable to believe that I did not touch
 “ every part where the teeth had been. He
 “ took the Ormskirk medicine by the direc-
 “ tion of Mr. Berry who sells it, therefore
 “ we must suppose it was properly given.

“ He also took the Tonquin medicine, viz.
 “ musk, cinnabar, &c. as also rubbed in mer-
 “ curial ointment till his mouth was fore.
 “ My whole dependance was on the caustic,
 “ but did not object to others being given.
 “ I wish I could say more on the subject in
 “ general. We seem to be as much at a
 “ loss how to treat it, as they were a thou-
 “ sand years ago. I have not yet heard the
 “ particulars of Master R.’s attack and symp-
 “ toms. I want very much to learn them.
 “ To ascertain a mode of cure will be very
 “ difficult. For a few cases not having the
 “ symptoms, under any course, prove but
 “ little. I know where there were twenty-
 “ one people bit by one dog, ; nothing was
 “ done for any of them, and only one was
 “ taken ill. If they had all taken medicines,
 “ then it would have been said, that they
 “ only lost one out of twenty-one.

“ I am, dear Sir,

“ Your most obedient servant,

“ JOHN HUNTER.”

A French woman was bitten at the same time by the same dog, and she died also.

Here

Here then is an indisputable case terminating fatally, where every favorable advantage might have been taken. A small animal inflicted the wound. The situation of the wound favourable for extirpation, as the parts divided might have been brought together, as in the operation for the hare lip. The early application of the patient for assistance. The vicinity of the surgeon to the place of the accident. The small space of time between the infusion of the poison and the application of the caustick. All these combine so many seeming fortunate concurring circumstances, as are rarely to be met with.

Mr. Hunter says, “ I immediately applied
 “ the caustic to every surface that I had
 “ conceived had been made by the dog’s
 “ teeth, and when these sloughs came away,
 “ I went over the same field a second time ;
 “ but from the termination of the whole, I am
 “ inclinable to believe, that I did not touch
 “ every part where the teeth had been.”

When

When it is considered, that the sharp-pointed teeth of a small animal made the wounds, and that the poison introduced into them would actually pass to the extremest points of the wounds ; and when it is further considered, that such wounds partially close immediately after that they are made, or are filled up in a great measure with blood flowing from divided vessels, a man of common reflection would be astonished, but scarcely ever convinced, how that caustick could ever pass to the bottom of these little wounds, so that its action should directly and effectually take place.

But admitting that caustick had been as fitting to the purpose of prevention, as the cutting out of the part, in order for these two powers to operate comparatively equal, the caustick should be continually applied, until as much of the parts were destroyed by its action, and in the same given time, as ought to be taken away by excision. If that had been done, which was not done, and if that had been effectually done, then,

G

in

in this instance, the distinction betwixt the destruction of the bitten parts by caustick, and the excision of the parts by the knife, would have been, that the former method would have left an unsightly ghastly scar ever after, and the latter would have finished in a seam not uncomely, by bringing the parts into union, and keeping them there until they adhered together. Mr. Hunter does not presume to deny, but that had the caustick been applied effectually, it would have answered the intended end; for he is “inclinable to believe, that he did not touch every part where the teeth had been.” The time was not too long, the opportunity had not passed by, the wound itself was not untractable, but the caustick was not effectually applied. When the life of an individual hung upon so nice a point as that of the bitten part being wholly extirpated or not; and when that perfect power of extirpation was as easily practicable, as that imperfect application of caustick, which failed, a modest man, a man of feeling, or a good surgeon, would have blushed at such

an apology, as that he was “ inclinable to
 “ believe, that he did not touch every part
 “ where the teeth had been.”

Having stated this fairly, I shall leave it
 for the reader to go on with the com-
 ment.

If he had ever deigned to read, he would
 have found, that by Fontana’s experiments,
 excision of parts, by the viper, never failed
 of preserving the animal from the delete- *Bitten*
 rious effects of the poison, when performed
 in time, before that absorption had taken
 place ; and he would have also found, that
 the caustick did sometimes fail, and that no-
 thing else could be confidently depended
 upon, but the timely excision of the whole
 of the bitten parts.

I shall proceed to lay before my readers,
 some extracts from this very ingenious au-
 thor. I have chosen the English translation
 of Mr. Skinner, a surgeon in the Royal

Navy, who a twelve month since translated it at my request.

*‘ Bites of the Viper treated with the Lunar
‘ Caustick.*

‘ The latter part of my experiments is
‘ the more important, in having for its ob-
‘ ject the securing us against the bite of the
‘ viper. My experiments are too few in
‘ number, and too little varied, either to al-
‘ low the drawing from them all the prac-
‘ tical utility that may be hoped, or to ren-
‘ der the method I have proposed, perfect.
‘ Owing to the season, I have experienced a
‘ scarcity of vipers; and the circumstances
‘ in which I have found myself, and the
‘ obligations I have had to fulfill, have pre-
‘ vented my applying myself more atten-
‘ tively, and in the way I should have wish-
‘ ed, to this subject. I shall, for the pre-
‘ sent, publish the result of such experi-
‘ ments as I have been able to make, intend-
‘ ing to return at a more convenient oppor-
‘ tunity, to an enquiry that has the good
‘ of

‘ of my fellow creatures for its object. In
 ‘ the mean time, I hope that philosophers
 ‘ and naturalists will pay every attention to
 ‘ this branch of medicine, and will spare no
 ‘ pains to render it more certain and use-
 ‘ ful.

‘ I had a middle sized rabbit bit five times
 ‘ successively in the leg, by a large viper, and,
 ‘ after making scarifications, applied the
 ‘ caustick, and washed and bound the
 ‘ wounds. The rabbit died at the end of
 ‘ twelve hours.

‘ I had another rabbit bit several times in
 ‘ the leg by a viper. It died in the space
 ‘ of an hour, although it was treated like
 ‘ the preceding one.

‘ I had two guineapigs bit in the legs by
 ‘ a viper, each one three times, and after
 ‘ making the scarifications, I applied the
 ‘ caustick. Both of them died in a few mi-
 ‘ nutes.

‘ I re-

‘ I repeated this experiment with the
 ‘ same circumstances, on a large guineapig,
 ‘ which died in the space of twenty-four
 ‘ hours.

‘ These five unexpected deaths convinced
 ‘ me how easy it is to be deceived, even in
 ‘ matters of observation and experiment, and
 ‘ how little trust is to be reposed in analogy.
 ‘ The minutest circumstance suffices to ren-
 ‘ der what in itself would be very useful,
 ‘ both useless and hurtful. *Every one may*
 ‘ *perceive, that in the present case the whole*
 ‘ *difficulty lies in making the caustick pene-*
 ‘ *trate into all the parts to which the venom*
 ‘ *has found its way.* But how can this dif-
 ‘ ficulty ever be surmounted? The holes
 ‘ made by the teeth of a viper are very
 ‘ small, and often invisible. They run in
 ‘ different directions within the skin, and
 ‘ have different depths, according to a thou-
 ‘ sand varied circumstances. The swelling
 ‘ or inflammation that succeeds, augments
 ‘ the difficulty still more, so that the scari-
 ‘ fications are made almost at hazard.

‘ I must

‘ I must not however omit that I have
 ‘ cured five other larger rabbits by this
 ‘ method, after they had been repeatedly
 ‘ bit by vipers ; as also several guineapigs
 ‘ that I had had bit in the same way ; all of
 ‘ which would probably have died, if they
 ‘ had not been treated with this new reme-
 ‘ dy. But I recovered a much greater num-
 ‘ ber of these animals, when they had been
 ‘ bit a single time only, although even in
 ‘ this instance some of them died ; and this
 ‘ was undoubtedly occasioned in the way
 ‘ related above ; *that is to say, not by the*
 ‘ *inefficacy of the medicament, but because*
 ‘ *it cannot always reach the parts where the*
 ‘ *poison has penetrated and lodged.* There
 ‘ are likewise other circumstances which
 ‘ elude the new method I have proposed,
 ‘ and these are, when the disease, by acci-
 ‘ dental circumstances, is more internal than
 ‘ external ; that is to say, when the venom
 ‘ is suddenly introduced in a large quantity
 ‘ into the blood of the animal, by the means
 ‘ of some vessel that the teeth may have
 ‘ penetrated. And I do not think it impos-
 ‘ sible,

‘ fible, but that the bite of the viper may
 ‘ kill even instantaneously, provided it
 ‘ should ever happen (which is not abso-
 ‘ lutely impossible) that the teeth should
 ‘ pierce a large venous vessel in such a way,
 ‘ that a quantity of the venom would be in-
 ‘ stantly carried to the heart. In this case,
 ‘ which differs little or not at all from the
 ‘ artificial injection of the venom, the disease
 ‘ may be incurable, and obviate all remedy.

‘ The lunar caustick, I repeat it, renders
 ‘ the venom of the viper innocent, and is
 ‘ its true specifical remedy ; but much re-
 ‘ mains to be done, to apply it with the
 ‘ greatest advantage in the bite of this ani-
 ‘ mal. It would perhaps be useful to swal-
 ‘ low it, diluted with water, even in pretty
 ‘ strong doses. If the venom of the viper
 ‘ derange the blood, and be fatal when it is
 ‘ introduced into the torrent of the circula-
 ‘ tion of humours, the lunar caustick, taken
 ‘ internally in a liquid form, may weaken
 ‘ its noxious qualities, and correct it in the
 ‘ vessels themselves, to such a degree as to
 ‘ destroy,

‘ destroy, or diminish, the internal disease
 ‘ that this venom produces.

‘ After my having discovered that the
 ‘ lunar caustick renders the venom of the
 ‘ viper innocent, it is natural to conceive
 ‘ that I ought to make some trials on the
 ‘ *lapis infernalis*; I have indeed made several.

‘ I found that a paste formed of this stone,
 ‘ and of the venom of the viper, might be
 ‘ applied with impunity to the wounded
 ‘ muscles of birds; on choosing ten of them
 ‘ for these experiments, not one died. But
 ‘ of three which I envenomed with the
 ‘ teeth, and dressed with the *lapis infernalis*,
 ‘ scraped to a powder, two died, one at the
 ‘ moment of application, the other at the
 ‘ end of two hours. I had four pigeons
 ‘ bit in the legs by vipers, and treated them
 ‘ with the same caustick. One died in my
 ‘ hands immediately after I had applied it,
 ‘ another in the space of an hour, and the
 ‘ two others recovered.

' Notwithstanding that the season was be-
 ' coming unfavourable, and that I had no
 ' longer a hope of finding any vipers, I
 ' met with thirty-four of them by accident,
 ' in an excellent state, and very vigorous.
 ' The first purpose to which I applied them
 ' was that of verifying my new remedy, and
 ' of seeing, at the same time, whether a so-
 ' lution in water of the lunar caustick, given
 ' internally, would be at all efficacious to
 ' animals bitten by the viper.

' I destined four very small guineapigs
 ' for this experiment, and made them drink
 ' a teaspoonful of the above solution: it was
 ' rather weak, but still disagreeable to the
 ' taste. I wounded the femoral muscles of
 ' three of them with venomous teeth, made
 ' immediate scarifications, and applied the
 ' lunar caustick as usual; neither of them
 ' died.

' I made another small guineapig swallow
 ' two tea spoonfuls of the above solution,
 ' and it died in my hands. I conclude from

‘ this that the quantity I employed was too
 ‘ great. I afterwards gave a single teaspoon-
 ‘ ful, as in the first experiment, to other
 ‘ four small guineapigs, and had them im-
 ‘ mediately bit by as many vipers, making
 ‘ scarifications instantly after. They all four
 ‘ died. One when scarce bitten, another
 ‘ in an hour, a third in three hours, and the
 ‘ last in five. The result of this experiment
 ‘ shows, that the bite of the viper is far
 ‘ more dangerous, than wounds that may
 ‘ be made artificially with its teeth, although
 ‘ filled with venom. One reason perhaps
 ‘ is, the difficulty of conveying the remedy
 ‘ nicely to all the parts where the teeth of
 ‘ the viper penetrate when it bites at its
 ‘ will. I likewise imagined at the time, that
 ‘ the smallness of the animals I made choice
 ‘ of might partly have caused this, and de-
 ‘ termined, in consequence, to make trials
 ‘ on larger and stronger ones, better able to
 ‘ resist the effects of the poison; parti-
 ‘ cularly the internal malady, which is
 ‘ communicated much quicker in small ani-
 ‘ mals. I had six fowls bit in the thigh by

‘ as many vipers. Five of them swallowed
 ‘ three teaspoonfuls each of the solution of
 ‘ the caustick, the other did not swallow
 ‘ any. I applied the lunar caustick in the
 ‘ same way to each of their wounds; the last
 ‘ died, the other five all recovered.

‘ I had six rabbits of a middling size bit
 ‘ in the thigh by as many vipers. I imme-
 ‘ mediately applied the lunar caustick to
 ‘ their wounds, and made them all drink the
 ‘ solution of it. Four of them recovered;
 ‘ the other two died, one in three hours,
 ‘ the other in eight.

‘ I repeated this experiment on six other
 ‘ rabbits, somewhat larger than the above,
 ‘ and neither of them died. On having
 ‘ four others bit, and treated exactly in the
 ‘ same way, they all likewise recovered.

‘ The number of these experiments is still
 ‘ too circumscribed to render us certain that
 ‘ the lunar caustick is a never failing reme-
 ‘ dy against the bite of the viper; and this

‘ is

‘ is owing to the difficulty of conveying it to
 ‘ all the parts into which the venom has in-
 ‘ sinuated itself: three or four hundred ex-
 ‘ periments would scarcely suffice to fully
 ‘ clear up this important matter; I how-
 ‘ ever have no doubt of the efficacy of this
 ‘ remedy, and can affirm, that the lunar
 ‘ caustick is the true specifical remedy against
 ‘ this dreadful poison.’

‘ *On the utility of amputating the Limbs bit by*
 ‘ *the Viper.*

‘ We have already seen that the action of
 ‘ the viper’s venom is not instantaneous; that
 ‘ it requires a certain time for its effects to
 ‘ be perceived in the bitten parts; and that
 ‘ the external malady does not communicate
 ‘ itself suddenly to the animal. We have
 ‘ also seen, that if the part bit by the viper
 ‘ be suddenly amputated, the animal sur-
 ‘ vives. All these experiments together sup-
 ‘ ply a certain remedy against the bite of
 ‘ the viper, when one can practice it with fa-
 ‘ cility. It is natural to suppose, that by
 ‘ lop-

‘ lopping off the diseased parts, the life of
 ‘ the animal may be saved; but the amputa-
 ‘ tion ought not to be much retarded, be-
 ‘ cause it is at least certain, that the sooner
 ‘ it is performed the surer its effects. In
 ‘ pigeons it begins to be even fatal at the
 ‘ end of fifteen seconds, at which time the
 ‘ internal malady is communicated, which
 ‘ the amputation encreases, and hastens
 ‘ death, instead of diminishing one and re-
 ‘ tarding the other, as I have been satisfied
 ‘ by several experiments.

‘ Before I examined into the advantages
 ‘ of amputations on animals bit by the viper,
 ‘ I wished to see whether the internal ma-
 ‘ lady would be communicated in a sensible
 ‘ way, and so as even to occasion death in
 ‘ other animals, in the same space of time
 ‘ as in pigeons. It was necessary to try it
 ‘ on animals that die with much greater
 ‘ difficulty than these last, but who would
 ‘ die to a certainty, and in a space not too
 ‘ distant from the introduction of the poi-
 ‘ son. I made choice of very small guinea-
 ‘ pigs,

‘ pigs, because I knew, by experience, that
 ‘ they had all these qualities.

‘ I had a guineapig bit several times at
 ‘ the extremity of the foot, which at the
 ‘ end of twenty seconds I cut off betwixt
 ‘ the tarsus and the tibia. The animal lived,
 ‘ and seemed to have no other complaint
 ‘ than that caused by the operation.

‘ I had another guineapig bit repeatedly
 ‘ at the extremity of the foot, by a viper,
 ‘ and at the end of forty seconds cut off the
 ‘ leg as above. He recovered in the same
 ‘ way with the former.

‘ A third guineapig received several bites
 ‘ in the foot, from a viper, a minute after
 ‘ which I cut off its leg. It recovered as
 ‘ well as the others.

‘ I had another guineapig bit repeatedly
 ‘ by a viper, in the foot, which, in eighty
 ‘ seconds, I cut off; this one likewise re-
 ‘ covered.

‘ I had

‘ I had another guineapig bit repeatedly
 ‘ in the foot by a viper, and two minutes
 ‘ after cut of its leg ; it recovered likewise.

‘ I had another guineapig bit several
 ‘ times by a viper, in the foot, which, at the
 ‘ end of three minutes, I cut off: this one
 ‘ recovered too.

‘ I had another guineapig bit several times
 ‘ by a viper, at the extremity of the foot,
 ‘ and at the end of four minutes cut off its
 ‘ leg: it died three hours after, having a
 ‘ lividness of the muscles of the leg, and
 ‘ the auricles and heart filled with clotted
 ‘ blood.

‘ I had another guineapig bit repeatedly
 ‘ in the foot by a viper, and at the end of
 ‘ four minutes cut off its leg: it recovered.

‘ It must be observed, that the feet am-
 ‘ putated at the end of three or four mi-
 ‘ nutes, have unequivocal signs of local ma-
 ‘ lady ; these signs are even observed before,
 ‘ although

‘ although with more difficulty, are not so
 ‘ certain, and do not exist always.

‘ Neither of the guineapigs bitten in the
 ‘ feet, and mutilated in less than three mi-
 ‘ nutes, died ; but of the two mutilated at
 ‘ the end of four minutes, one died, and the
 ‘ other survived. There are even here then,
 ‘ as well as in many other cases we have seen
 ‘ above, circumstances in which the bite of
 ‘ the viper produces greater or lesser effects ;
 ‘ but what is more important, and deserves
 ‘ all our attention, is, that the internal ma-
 ‘ lady is not communicated to the animal
 ‘ till very late, in comparison to that in the
 ‘ cases of the pigeons, or more properly,
 ‘ that it does not become mortal till after a
 ‘ long time, and that the cutting off the
 ‘ part bitten may be made with all possible
 ‘ advantage and safety, within the limits of
 ‘ a much greater time.

‘ But let us continue our experiments, the
 ‘ number of which has been too small to
 ‘ supply us with certain conclusions.

I

‘ I had

‘ I had a guineapig bit several times in
 ‘ the foot, by a viper, and cut off its leg at
 ‘ the end of four minutes: it recovered.

‘ I had another one bit repeatedly in the
 ‘ foot by a viper, and cut off its leg at the
 ‘ end of five minutes: it recovered.

‘ I had another guineapig bit in this way
 ‘ in the foot, and at the end of six minutes
 ‘ cut off its leg; it died ten minutes after.

‘ I had three guineapigs bit in the foot by
 ‘ a viper, each one several times, and in four
 ‘ minutes cut from each a leg: they all re-
 ‘ covered.

‘ I had three others bit in the foot in the
 ‘ same manner, and in five minutes cut off a
 ‘ leg from each of them: they all three re-
 ‘ covered.

‘ I had three others bit in the same way,
 ‘ and in six minutes performed the opera-
 ‘ tion: one only recovered.

‘ I had

‘ I had three others bit as above, and in
 ‘ ten minutes cut off a leg from each: they
 ‘ all died.

‘ From all these experiments it appears
 ‘ that this deduction may be made, that
 ‘ every thing is to be expected from the am-
 ‘ putation of the leg, if performed on gui-
 ‘ neapigs before six minutes are elapsed af-
 ‘ ter their being bit by the viper.

‘ It is natural to suppose, that in larger
 ‘ animals the amputation may be made much
 ‘ later still than six minutes, and experience
 ‘ has demonstrated it in very large rabbits;
 ‘ but we may stumble on another inconve-
 ‘ nience which confines this method very
 ‘ much: pigeons are not endangered by
 ‘ the amputation of the leg; small gui-
 ‘ neapigs bear that of the extremity of the
 ‘ foot, but not always that of the leg;
 ‘ larger animals are more apt to die, when
 ‘ a great part of them, such as the leg, is
 ‘ lopped off; such an operation in these cases
 ‘ is not only useless but dangerous.

‘ It does not, however, follow, that am-
 ‘ putation, even in large animals, may not
 ‘ be useful against the bite of the viper; in
 ‘ general it is so when the animal bears it
 ‘ easily, provided it be done at a convenient
 ‘ time. As amputation may be very useful
 ‘ in a great number of cases, I thought it
 ‘ incumbent on me to make experiments,
 ‘ and to vary them several ways, on differ-
 ‘ ent animals.’

The idea of giving this publication oc-
 curred to me three years ago, but I waited
 the event of the two cases I am about to pro-
 duce, and since then, my time hath been
 filled up with writing on another subject,
 only more serious, because it was more
 common. The method of preventive cure,
 by the excision of parts bitten, is so very
 obvious, that it cannot be presumed but
 that rational men, in all countries, must
 have thought alike about it. I do not pre-
 tend to be the first on the list in recom-
 mending this system. I am content, that
 it should be said, I have added my cases to
 others,

others ; that I have confirmed the truths of Fontana, of Monsieur le Roux, of Dr. Hamilton, of Mr. Newson, and many others. All I ask, is, the confidence of the publick to these points, that I firmly believe the experiments of Fontana are just, and that the analogy betwixt the bite of a viper and the bite of a mad dog, is fair, in a general sense ; but that the bite of a viper is much more rapid in its action, and its poison much more feeble in its power ; that the venom of the viper is a continued constitutional secretion, harmless to the viper who secretes it, of a more exalted nature in summer than in winter ; that the venom of the mad dog is in its action very slow, difficult to be communicated ; that it is a poisonous fluid which has undergone a change from a healthful secretion of saliva, and which is produced by a disease, *fui generis*, from a constitutional cause, *ab origine*, inherent in the dog, and is continued to be propagated by inoculation through the teeth of a mad dog to a dog otherwise sound. That the dog, and some other animals, are subject to
this

this disease in all countries, and that it prevails, although not so common, in extreme cold, as well as in extreme heat. That the venom of each must be absorbed into the habit, before that the deleterious effects from it can be felt; and that from the torpid action of the venom of the mad dog, these deleterious effects might be always judiciously prevented. I think my two cases are in point, to confirm these assertions.

CASE of ELIZABETH PRATT.

ON Wednesday, the 23d of January, 1785, G. G. Esq. and his lady, of Bromley-hill, in Kent, walked into the town of Bromley, accompanied by their Newfoundland dog. To all appearance, the dog was perfectly well, until they came into the town, when he was perceived to snap at every dog that came in his way: and in the town a great number of dogs were assembled about him. On their return back to Bromley-hill, he then snapped at the pigs, for which Mr. G. beat him, but fortunately he
never

never turned to bite. On enquiry of the servants, it was found that the dog had been snapping at every thing in the farm yard that morning. They then began to suspect that the dog was mad, and ordered him to be chained up in his kennel, which was his usual place of confinement. It was made of open slips of wood. When this was done, he made not the least resistance. The servants were all at the time cautioned to keep out of his way: but they were not awakened by this admonition, for Ann Lowe, the dairy maid, on the 24th in the evening, going within the reach of his chain, he flew at her; it was with the greatest difficulty that she could extricate herself from him, and not without having her clothes very much torn. The dog that night began to howl and bark in an uncommon manner. On the 25th, in the forenoon, Elizabeth Pratt, the cook, who usually served the dog with food, went to give him water, when, instead of lapping, he suddenly seized her by the arm, which bled a great deal. She then began to be

3

alarmed,

alarmed, recollecting that the cautions which were before given, of the dog being mad, were founded in truth. Mr. and Mrs. G. being in London, at the time that Elizabeth Pratt was bitten, they were not informed of it until Saturday morning the 26th; and it was not until the evening of the 26th, about six o'clock, that Mr. G. returned from London to his house, accompanied by Dr. John Hunter, of St. Alban's-street, late physician to the army at Jamaica, and myself. The Doctor and I were brought out there for the purpose of doing our best for the cook. The bite was on the external part of the arm, rather nearer the elbow than the wrist. Many punctures of the teeth were apparent, and the parts were inflamed. Late as it was after the accident, we did not hesitate to propose the excision of the part as the unicum remedium. To this the cook, with some hesitation, consented, and about eight o'clock it was done. The skin of the arm, from being exposed to heats and colds, was very thick. The part that was taken out, was
about

about the size of a crown piece; and on account of the part being inflamed, it bled profusely. The muscle beneath appeared livid, as if it had been contused by the gripe. Upon examining the excised piece, I found that the probe passed through only one of the punctures, made by the teeth of the dog. We dressed the wound with lint, moistened with spirit of wine, in which corrosive sublimate had been dissolved, and directed that it should be continually kept moist with the same. This, we judged to be a good after application, as it acted like a caustick, and at the same time there would be no necessity for removing the dressings to apply it. The event of this case was, that the wound healed up in due time, as other wounds do; and the cook has continued well ever since. We staid there all night, and were much disturbed by the yells of the dog; the next morning his master released him from his agony, when almost expiring, by a discharge from a blunderbuss. The wooden lattice of his kennel was gnawed almost through.

K

CASE

CASE of GEORGE LANE.

GEORGE LANE, groom to J. B. Esq. late of Essex-street, in the Strand, was bit by his master's terrier dog, whilst on a journey into the country. The dog had been observed to be not in his usual spirits, when they sat out from town, and had fought with another terrier dog, belonging to the groom, that was tied up in the stable, and which had previously been in familiarity with him. The dog, on the road, discovered increased symptoms of a disordered state, although it was not suspected even then by them, what was the nature of that disordered state. The groom, conceiving him to be in a fit, got off from his horse, and on coming up to examine him, the dog, although bred up in the closest attachment to the groom, flew at him, and bit him. The dog immediately afterwards dashed through the next hedge, and ran off in a straight line over the country. The groom pursued him for near a mile, but without success, and the dog was never heard of more.

The terrier dog that he bit in the stable, and that was always after kept tied up in the stable, died mad, in a fortnight, from the bite. It was on Friday, the 10th of June, 1785, at nine o'clock at night, that he was bit; and it was on Monday, the 13th of June, at five o'clock in the afternoon, that I extirpated the part. The wound was on the external part of his thumb, near to the knuckle. I here had an opportunity of taking away much of the furrounding parts, as the wound was not large; and I dressed it afterwards with lint, dipt in solution of sublimate, with spirits of wine. Two years since Mr. B. informed me, that the groom was well; and I know nothing to the contrary, but that he continues so to this day.

The distance of time betwixt the bite of the dog and the extirpation of the part, in the first case, was from thirty-two to thirty-five hours. The distance of time betwixt the bite of the dog, and the extirpation of

the part, in the second case, was sixty-eight hours.

This must afford great consolation for many reasons. It gives time to make enquiries concerning the dog, to collect opinions upon the state of the case, to fix regulations about that which is necessary to be done for the safety of the patient, and to bring together some of the ablest surgeons residing in the neighbourhood, to the end that that which is to be done, be done effectually. It should be held as a standing maxim, that the part bitten be taken away, as soon as it possibly can be, after the accident. And although, from some untoward delay, such as cannot be foreseen, either incurred from the carelessness of the patient, or from his not being conscious that he was bitten by a dog that was actually mad, some time may be lost, yet admitting, that it is well understood, that the patient is bitten by a dog that is mad, I am well assured, that in the space of ten hours, an able surgeon might be brought to the assistance of the patient, let the accident hap-
pen

pen wherever it may, in any part of this country.

It is not in my power to form a conclusive opinion, at what period, the patient may be safe, by the part being extirpated, after the bite is inflicted. But I do not think that the idea ought to be abandoned any time before the symptoms of hydrophobia have come on; hope forsaken, is succeeded by despair. In the quotation that I gave from Fontana, the distance of time betwixt the bite being given, and the cutting off the part, for saving the life of the subject, is precisely set down, and vice versa. It is to be presumed, that in proportion to the interval, betwixt the application of any virus to a subject, and its visible effect upon the constitution, will, the time for the taking away the part infected, be safe or otherwise. One may reasonably suppose, that the extirpation of a part bitten by a viper, should be instantaneously performed. That the part inoculated with variolous matter might be deferred for
more

more than twenty hours ; and that the part bitten by a mad dog, yet four times longer, as the hydrophobick symptoms, upon a general scale, are forty days before they appear, and those of the small pox ten. Whenever an opportunity offers, some experiments, similar to the following, should be tried. The mad dog should be tied up in a latticed kennel, and permitted to bite other dogs. The bitten parts should be cut out at different periods. The propagation of the disease might be so carried on, as to afford an opportunity of conducting useful experiments ad infinitum. These would mark the security of the method by extirpation, and would ascertain how long a time it would be safe, to delay the operation, after the bite, in that animal. The apparent cruelty of such experiments would prove to be humanity in the end. As when the full extent of the power of the disease, and the remedy over it, be ascertained, we should be enabled to apply such knowledge to the preservation of favorite dogs as well as of ourselves.

These

These experiments would yet be productive of more utility. They would tend to convince obstinate skepticks, and make the system familiar to the most vulgar minds. Whilst those who are endowed with more enlightened understandings, and upon whom the superior gifts of education, and the bounties of fortune, are liberally lavished, should, in return, lend their aid, to remove prejudices deeply rooted in the minds of the uninformed. Their confidence should be guarded against delusive remedies, that it may not be practiced upon by the designing nor the ignorant, to the injustice of all who fall victims to the fatal error, and to the deep affliction of others, who from strong and irresistible affection, poignantly feel the loss from untimely annihilation, in the dearest ties of friends and relations.

From

*From the PHILOSOPHICAL TRANSACTIONS of
the Year 1737-8, No. 445.*

“ The CASE of a lad bitten by a mad dog,
communicated in a letter from Mr. Ed-
ward Nourse, F. R. S. and Chirurgeon to
St. Bartholomew’s Hospital, to Cromwell
Mortimer, M. D. Secr. R. S.

“ Dear Sir,

“ Presuming that the following Case will
be acceptable to the Society, I beg leave to
communicate it through your hands.

“ I am,

“ Your most obedient servant,

“ EDWARD NOURSE.”

Jan. 18, 1736-7.

“ Stephen Bellas, aged about sixteen,
some time in June, 1735, was bit by a mad
dog through the nail of his right thumb:
I was called immediately upon the accident,
when I proposed to make a ligature above,
and

and to cauterize the wounded part; but that not being complied with, I desired Mr. Gernum, the apothecary, who was present, to make up the remedy, mentioned by Dampier, in our Transactions, No. 237 and 443. Of this powder he took a drachm, within an hour after he was bit; repeated it the next morning, before he sat out for Gravesend, where he was ten days, and dipt in the salt water every day; during which time he repeated the medicine night and morning, and continued so to do for forty days. This boy was without the least sign of being affected by the poison, till Tuesday last, the 11th of January, 1736-7, when, in the evening, he complained of a numbness in three of his fingers of the hand that was not bit: on Wednesday morning he was sick, had great pain across his stomach, and in all his bones: in the evening, I was sent for to bleed him, the people about him supposing that he had got a cold. When I came, I found him feverish, with a hard full pulse. I asked what complaints he had? The answer was, none, for he could not
L swallow;

swallow; whereupon I looked into his mouth, but there was no inflammation; neither did any thing occur to me, that could possibly produce the difficulty of swallowing, he said he had: I offered him some sack-whey in a basin, but he started at the sight of it, neither would he suffer it to come near him. I then offered him a spoonful, which I prevailed upon him to swallow: the moment it was down, he was convulsed, and a remarkable horror appeared in his countenance, which was succeeded by a profuse sweat all over his face and head. He afterwards took another spoonful; the consequence was as before, but in somewhat a higher degree. I was now convinced, that this was the hydrophobia, and that it arose from his having been bit nineteen months ago; for after the most strict enquiry, it does not appear, that he had been bit by any other animal since; and if he had, it is very probable, I should have known it, his master living next door to me, and the boy knowing how much danger we thought him in, when he was bit.

I ac-

I acquainted his friends with my apprehensions, and desired further advice; upon which Dr. James Munro was sent for, who ordered him to be let blood, a repetition of the above-mentioned medicine, in a bolus, every four hours, and a clyster: he was blooded, and the clyster was injected; but he was prevailed upon to take but one of the bolusses. This night was spent with great inquietude, and without any sleep: Thursday morning he was generally convulsed, and had frequent reachings and and yawnings alternately; about noon, his mind (which continued sound till then) left him, and he raved and foamed at the mouth 'till five o'clock in the afternoon; at which time nature seemed quite spent, and he lay very quiet till seven, when he died."

"The poison in this boy, you find, was latent near nineteen months; which I know the books mention, but it never fell within my observation before.

L 2

"I do

“ I do not know, whether it be necessary to tell you, that I cut this boy for the stone last summer, about a year after he had been bit ; I never saw a wound more disposed to heal, and he was well and abroad in five weeks.”

This very remarkable and well authenticated case had not occurred to me, but from a conversation which I lately had with Mr. Pott upon this subject, to all the circumstances of which he was himself an eye witness: for he saw the bitten part at first with Mr. N. he saw the lad cut for the stone, and watched the symptoms of hydrophobia, when they were on him, from the beginning to the end. And such was the impression of this case upon his mind, that he was capable, at this distance of time, of giving me more minute information upon this subject, than had been hitherto recorded. Mr. Pott told me, that the lad was brother to Mr. George Bellas, late a proctor in Doctors
Com-

Commons ; that he was playing with an Italian greyhound, which belonged to his master, Mr. Bates, a vintner, and late an Alderman of London ; that the greyhound was not then suspected to be mad ; that he was bitten in the slightest manner, a little below the nail, on the outer part of the thumb ; and that the greyhound soon after died mad.

This case proves strongly, that the slightest wound, from the bite of a mad dog, is not to be neglected. It might be presumed, that the distance of time, before the symptoms of hydrophobia came on, after the bite of the dog, would keep the mind of a patient in a similar predicament, under a longer anxiety, from the force of example, in the event of this case. But we must not be, from such a motive, afraid to face the truth. This case hath been announced as a singular one. Forty days, as I before observed, is about the general average, from the time of the bite to the time of the coming on of hydrophobick symptoms. A resolution should be fixed, in consequence

quence of this case, and of the arguments already enforced, of depriving the virus from ever acting at any period of time, by an early and effectual extirpation of the whole of the bitten part, if the wound inflicted be ever so slight.

APPENDIX.

A P P E N D I X.

THAT the following account, as given in the London Medical Journal, for the year 1788, Vol. IX. Part 1. might not be said to have escaped my notice, I shall here transcribe it from that Journal.

IX. *An Account of an Experiment lately made at Florence, in a case of Hydrophobia. Communicated by Mr. J. Fabbroni, Assistant Director of the Cabinet of Natural History of his Royal Highness the Grand Duke of Tuscany, and Secretary of the Royal Academy of Agriculture at Florence, in a Letter to Sir Joseph Banks, Bart. P. R. S. and by him to Dr. Simmons.*

‘ During the last summer we had a great
 ‘ number of mad dogs in the neighbour-
 ‘ hood of this city, and in the city itself.
 ‘ Several persons, who were bit by them,
 ‘ died of hydrophobia; and their bodies
 ‘ were examined after death, but without
 ‘ affording

‘ affording any information relative to the
 ‘ disease. The viscera were uniformly
 ‘ healthy, except in one subject, in which
 ‘ the lungs were found adhering to the
 ‘ pleura; but, in all of them, the brain was
 ‘ observed to be more loaded with blood
 ‘ than usual.

‘ In one case, an experiment, which the
 ‘ physicians here have long had an idea of
 ‘ making, and from which they were not
 ‘ without some hopes, was tried. It was
 ‘ indeed somewhat bold, but in the horrid
 ‘ and hopeless state to which the unhappy
 ‘ patients in such cases are reduced, every
 ‘ thing seems to be allowable; and the per-
 ‘ son on whom the experiment was tried
 ‘ appeared to be so near his end, that it
 ‘ was thought he could not possibly survive
 ‘ more than an hour.

‘ In this case, a viper was applied to each
 ‘ of the patient’s legs, and at the very in-
 ‘ stant of the bite the symptoms seemed to
 ‘ increase in violence; but this was only
 ‘ mo-

‘ momentary, as he immediately became
 ‘ more calm and collected, gave an account
 ‘ of his relations, asked for somewhat to
 ‘ drink, and even drank; but died within
 ‘ half an hour.

‘ This experiment did not seem to be at
 ‘ all conclusive either for or against; but it
 ‘ occasioned so much popular clamour, that
 ‘ I think it will hardly be repeated here, at
 ‘ least on a human subject.’

If this had appeared to me to be a mere innocent medical whim only, or if I were sure that the weak and credulous part of mankind would not fall into such a palpable snare, I should most certainly have treated the above account with silent contempt.

I shall give my opinion of this practical experiment in a few words. That I think it the highest vanity of ideotism, a disgraceful insult upon human understanding, and

M a prosti-

a prostitution of the Journal in which it was inserted.

VAN SWIETEN's *Receipt for Palmarius's Powder.*

Take of the leaves of rue, vervain, the lesser sage, plantain, polypody, common wormwood, mint, mugwort, bastard baum, (mellifophyllon) betony, St. John's wort, and the lesser centory, each equal parts.

All these were to be gathered every year, when in full vigour, and dried. Of all these powdered, half a dram, with double the quantity of sugar, was to be taken every morning fasting.

The Pewter Medicine, as it stands in the Philosophical Transactions, from Sir Theodore Mayerne.

Take leaves of rue, picked from the stalks and bruised, six ounces; of London
treacle

treacle (or which is better, Venice treacle) garlic peeled and bruised, and fine filings of tin, each four ounces ; put them into two quarts of canary, or good white wine ; or in case of a nice constitution, into the same quantity of strong and well worked ale, in an earthen vessel well stopped. Then let there be made a digestion, or gentle boiling thereof, in a bath heat, for some hours, shutting in the steam. Then press it and strain it.

The dose is from two to three ounces, or more, to be taken every morning, for nine days.

Dr. Mead's Powder from his own Book on Poisons.

Take of the herb, called in Latin, lichen cinerius terrestris, in English, ash-coloured ground liverwort, cleaned, dried, and powdered, half an ounce ; of black pepper powdered, two drams.

Mix these well together, and divide the powder into four doses; one of which must be taken every morning successively, in half a pint of cow's milk, warm.

Sir George Cobb's Receipt, or the Tonquin Medicine.

Take of native and factitious cinnabar, each twenty-four grains; musk sixteen grains. Let them be powdered and mixed together.

This powder was taken all at once in a tea-cup full of arrack, and the dose was repeated thirty days after.

The Ormskirk Powder, prepared by Mr. Hill, and analysed by Doctors Haysham and Black. Vide Medic. Comment. Soc. Edingb. Vol. V. p. 43.

Take of chalk half an ounce, of bole three drams, of allum ten grains, of elecampaine one dram, of oil of anniseed six drops. Mix these together for a dose, to be taken every morning, for six times.

CATA-

CATALOGUE of Authours on the Hydrophobia, in Portal's Tableau Chronol. p. 824, tom. 7. and taken by him from Draudius's Biblia Classica.

Bravius, 1551, Salmanicæ.

Mercurialis Hieronymus, 1580, Bataviæ.

Baccius And. 1586, Romæ.

Varismannus, 1586.

Mancinellus Ascanius, 1587, Venet.

Abbatius, 1589.

Bauhin, 1590, 1591, Montbelliard.

Roscius, 1606, Basil.

Caiffon, 1609, Aix.

Codronchius, 1610.

Sprachman, 1613, Lond.

Caiffan, 1616, Paris.

Humel in 8vo. Catalog. du Burette,

Caranta, 1623, Saviliani.

Aromatarus, 1625, Venet.

Bonaventura, 1627.

Stegel, 1640.

Severinus, 1643, Bataviæ,

Gockelius, 1679, Augsburg.

Loffius,

Loffius, 1682.

Ettmuller, 1685.

Albinus, 1687.

Wedel, 1695.

Eyselius, 1705.

Fetzer, 1733.

Schulze, 1740.

Olivier, 1743.

Boemar, 1745.

Sauvage, 1749.

Nugent, 1754.

Gallarati in Milano.

F I N I S.